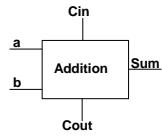


1Bit Adder, Sum

a	b	cin	cout	sum
0	0	0	0	0
0	0	1	0	1
0	1	0	0	1
0	1	1	1	0
1	0	0	0	1
1	0	1	1	0
1	1	0	1	0
1	1	1	1	1



$$\text{Sum} = (a \cdot \bar{b} \cdot \bar{\text{Cin}}) + (\bar{a} \cdot b \cdot \bar{\text{Cin}}) + (\bar{a} \cdot \bar{b} \cdot \text{Cin}) + (a \cdot b \cdot \text{Cin})$$

Sum: $OR(AND(a, NOT(b), NOT(Cin)), AND(NOT(a), b, NOT(Cin)), AND(NOT(a), NOT(b), Cin), AND(a, b, Cin))$

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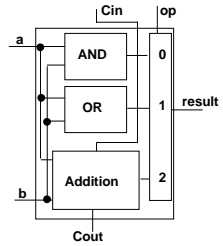
1-Bit And/Or/Add ALU

Combine components

Set op=1 for and \$result, \$a,\$b

Set op=2 for or \$result, \$a,\$b

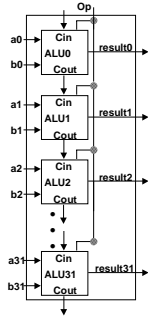
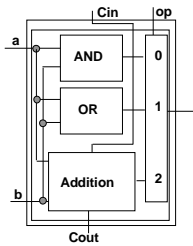
Set op=3 for add \$result, \$a,\$b



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32-Bit ALU

Compose 32 bit-slices



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